

95/02709 Nuclear programs see a qualified increase

Nuclear News, Mar. 1995, 38, (3), 15-16.

Reports that despite pressure to reduce government spending, overall spending on nuclear energy programmes increased by 32.7% in the White House budget proposal for fiscal year 1996, with increases in nearly every individual programme except civilian reactor development. Overall energy supply and distribution funding shows an 11.6% increase, primarily because of the increase for nuclear energy.

95/02710 Plutonium disposition. DOE report leaves all reactor options open

Nuclear News, Jan. 1995, 38, (1), p. 59.

Reports that the US Department of Energy can preserve the reactor option for disposing of weapons-grade plutonium without new funding, according to an October 31, 1994, report from DOE Secretary Hazel O'Leary to Sen. J. Bennett Johnston. The report says 77 operating U.S. commercial reactors could be converted to burning mixed-oxide fuel. The DOE is also considering new light-water, liquid-metal, gas-cooled, or Candu reactors, or finishing partially completed reactors.

95/02711 Sizewell B starts up

Varley, J. *Nuclear Engineering Int.*, Jan.-Feb. 1995, 40, (488), p. 14.

Short report on the start up at Sizewell B.

95/02712 Study shows need for more nuclear power. Japan

Atom, Jan.-Feb. 1995, (437), p. 8.

A short report on future prospects for nuclear power in Japan.

95/02713 Survey reveals unexpected support for nuclear energy

Atom, Jan.-Feb. 1995, (437), p. 12.

Reports that nuclear power is an essential part of a balanced energy mix, according to the majority of people polled across the UK by Gallup.

95/02714 UI: U.S.-Euratom pact needed by early spring

Nuclear News, Jan. 1995, 38, (1), p. 44.

Reports on a statement issued by the Uranium Institute on 8 December which urges the United States and Euratom to make every effort to finalize a new nuclear cooperation agreement before the present one, which dates from 1958, expires at the end of 1995.

95/02715 Uranium for electricity and the outlook for nuclear energy

The Uranium Institute, *Energy & Environment*, 1995, 6, (1), 31-42.

The Uranium Institute is the international industrial association for organisations concerned with the use of nuclear fuel for civil purposes. It has 80 members from 20 countries, including electricity utilities, uranium mining companies and fuel processing and trading firms. The Institute's members produce threequarters of the world's uranium output and about half of its nuclear electricity. The Institute's latest market report *The Global Uranium Market: Supply and Demand 1992-2010* provides a comprehensive worldwide overview of developments in the uranium industry, mainly based on information from individual companies in the industry. Includes data for China, East European countries and the Commonwealth of Independent States and examination of the impact of recycling of spent fuel on the prospective supply and demand balance for uranium and fuel services.

95/02716 Will the uranium market heed the call for more from the mines?

Moore, K. *Atom*, Jan.-Feb. 1995, (437), 32-34, 36.

Three years after its last report, the Uranium Institute has again surveyed the state of play in the uranium and fuel services markets. Discusses how in this short time, significant changes have occurred, as the industry evolves amid far-reaching economic and political changes.

06 ELECTRIC POWER GENERATION AND UTILISATION

Scientific, Technical

95/02717 Analysis of the performance of induction watt-hour meters in the presence of harmonics (a new model approach)
Chou, C. J. and Liu, C. C. *Electric Power Systems Res.*, Jan. 1995, 32, (1), 71-79.

A quasilinear model is developed to investigate the registration error of an induction watt-hour meter in the presence of harmonics. The registration error is determined by all the frequency responses of the harmonic components, the distortion factors of voltage and current harmonics, and the harmonic power factors; their relationship is clearly expressed in a simple error function by using the model, which provides a firm analytical basis to describe all the phenomena of the frequency response and harmonics response of the meter. All the meter parameters in the model are measurable; the measurement principles and procedures are also described in this paper.

95/02718 Anode materials, their manufacture and secondary lithium batteries

Mabuchi, A. *et al.*, (Assigned to) *Osaka Gas Co. Ltd.*, JAP. Pat. JP.06,236,755, Aug. 1994.

95/02719 Bonneville powerhouse overhaul

MPS, Modern Power Systems, Feb. 1995, 15, (2), p. 51.

Reports that the United States Army Corps of Engineers has awarded a \$40 million contract to Voith Hydro Inc. for the supply of replacement parts and services for the First Bonneville Powerhouse on the Columbia River near Portland, Oregon. Includes replacing the transformers and rehabilitating the 115 kV switchyard.

95/02720 Carbon-ion fuel cell for flameless oxidation of coal
Cocks, F. H. and Laviers, H. *US Pat. US.5,348,812*, Sep. 1994.

95/02721 Commercialization of fuel cells

Penner, S. S. *et al.*, *Energy*, May 1995, 20, (5), 331-470.

A summary report on the commercialization status for stationary-power applications of phosphoric acid, molten carbonate, solid oxide, and polymer electrolyte membrane fuel cells.

95/02722 Conditions for saddle-node bifurcations in AC/DC power systems

Canizares, C. A. *Int. J. Elect. Power & Energy Systems*, 1995, 17, (1), 61-68.

Saddle-node bifurcations are dynamic instabilities of differential equation models that have been associated with voltage collapse problems in power systems. This paper presents the conditions needed for detecting these types of bifurcations using power flow equations for a dynamic model of AC/DC systems, represented by differential equations and algebraic constraints. Two methods typically used to detect saddle-node bifurcations, namely, direct and parameterized continuation methods, are briefly analysed from the point of view of numerical robustness.

95/02723 Conventional power system stabilizer with auxiliary self tuning/fixed-parameter controller

Wen, C. and Gibbard, M. J. *Int. J. Elect. Power & Energy Systems*, 1995, 17, (1), 39-49.

In this paper the concept of a composite power system stabilizer is investigated. This stabilizer comprises a properly designed, robust, conventional power system stabilizer and an auxiliary stabilizer which can be either a self-tuning stabilizer or a fixed-parameter stabilizer.

95/02724 Exergy analysis of a fuel-cell system

De Groot, A. and Woudstra, N. *J. Institute of Energy*, Mar. 1995, 68, (474), 32-39.

In the past decade significant progress has been made in the technological development of fuel cells. This is especially true in the area of high-temperature fuel cells, the molten carbonate fuel cell and the solid oxide fuel cell. Sub-scale systems with high-temperature fuel cells producing 100 to 250 kW of electrical power are being built and operated. A scaling-up to systems delivering several megawatts of electrical power is planned before the turn of the century. The operation of a fuel-cell system requires not merely one or more fuel-cell stacks, but also sub-systems to condition the process flows and utilise the residual heat. Earlier studies have shown that a higher degree of integration significantly improves the efficiency of fuel-cell systems; at the same time, however, it makes systems more complex.